

CLAIMS

What is claimed is:

1. A locking apparatus comprising:
a portable terminal having a terminal control section and a bottom plate, wherein the bottom plate includes a first connection terminal connected to the terminal control section and a locking hole; and
a cradle having a seating portion, on which the portable terminal is seated, a cradle control section, a second connection terminal located in a position corresponding to the first connection terminal and connected to the cradle control section, and a locking member located in the seating portion in a position corresponding to the locking hole,
wherein the locking member is inserted into the locking hole and rotates based on locking member rotation information.
2. The locking apparatus according to claim 1, wherein the bottom plate comprises at least one additional locking hole and the seating portion comprises at least one additional corresponding locking member.
3. The locking apparatus according to claim 1, wherein the locking member rotation information is created in response to the the first and second connection terminals being connected together after the portable terminal is seated on the seating portion and a request is made that the locking member and the locking hole be locked together.
4. The locking apparatus according to claim 1, wherein the portable terminal further comprises an input part to allow a password to be inputted by a user to release the connection between the locking member and the locking hole, wherein the locking member rotation information is created in response to the inputted password.
5. The locking apparatus according to claim 3, wherein the cradle further comprises a rotary motor controlled through the cradle control section and connected to the locking member, wherein the rotary motor is rotated when a recognition signal for the locking member rotation information is inputted into the cradle control section.

6. The locking apparatus according to claim 5, wherein the first connection terminal comprises a first control section connection terminal that is connected to the terminal control section, the second connection terminal comprises a second control section connection terminal that corresponds to the first control section connection terminal and is connected to the cradle control section, and the recognition signal is transmitted from the terminal control section to the cradle control section through the first and second control section connection terminals when the first and second control section connection terminals are connected together.

7. The locking apparatus according to claim 5, wherein the first connection terminal comprises a first control section connection terminal that is connected to the terminal control section, the second connection terminal comprises a second control section connection terminal that corresponds to the first control section connection terminal and connected to the cradle control section, and the recognition signal is transmitted from the terminal control section to the cradle control section through the first and second control section connection terminals when a password is inputted into an input part.

8. The locking apparatus according to claim 6, wherein the rotary motor is controlled to stop the rotation of the locking member when a rotary motor control signal is inputted through the cradle control section.

9. The locking apparatus according to claim 8, further comprising:
a light transmission/reception hole located in a predetermined area in the bottom plate of the portable terminal;

a light transmission/reception port emitting light, wherein the light transmission/reception port is located on the cradle and positioned such that emitted light is reflected from the locking member through the light transmission/reception hole; and

a reflection plate reflecting the light to the bottom surface of the locking member, wherein the reflection plate is located on the cradle, and when a predetermined amount of light reflected from the reflection plate is received in the light transmission/reception port, the rotary motor control signal is produced in the cradle control section based upon the amount of reflected light.

10. The locking apparatus according to claim 9, wherein the locking member rotation information is created in response to the connection of the first and second connection terminals when the amount of light reflected from the reflection plate does not exceed the predetermined amount of light.

11. The locking apparatus according to claim 9, wherein the locking member rotation information is created in response to the password inputted through the input part when the amount of light reflected from the reflection plate exceeds the predetermined amount of light.

12. The locking apparatus according to claim 5, wherein:
the cradle further comprises a polarity switching terminal connected to the rotary motor, for switching polarities of the electric power applied to the rotary motor, the polarity switching terminal being controlled through the cradle control section; and
the polarity switching terminal switches the polarities such that the rotary motor rotates in a given direction when a recognition signal for recognizing the connection of the first and second connection terminals is inputted through the cradle control section, and the rotary motor rotates in a direction opposite to the given direction when a recognition signal for recognizing the inputting of the password is inputted.

13. A locking method based on a portable terminal and a cradle, wherein the portable terminal comprises a terminal control section, a first connection terminal provided on a side of a bottom plate and connected to the terminal control section, and a locking hole formed in the other side of the bottom plate, and the cradle comprises a seating portion on which the portable terminal is seated, a cradle control section, a second connection terminal located in a position corresponding to the first connection terminal and connected to the cradle control section, a locking member located in the seating portion in a position corresponding to the locking hole, and a rotary motor connected to the locking member to rotate the locking member wherein the locking method comprises:

creating locking member rotation information that is rotation request information of the locking member;

transmitting a recognition signal, in which the terminal control section recognizes the locking member rotation information and transmits the recognition signal to the cradle control section;

outputting a control signal for controlling the rotary motor, in which the cradle control section outputs the control signal based upon the recognition signal; and
driving the rotary motor according to the control signal, to rotate the locking member.

14. The locking method according to claim 13, wherein upon a request that the locking member and the locking hole be locked each other, the locking member rotation information is created in response to the connection of the first and second connection terminals after the portable terminal is seated on the seating portion.

15. The locking method according to claim 13, wherein upon a request that the locking between the locking member and the locking hole be released, the locking member rotation information is created in response to a password inputted through an input part connected to the terminal control section, the input part being provided in the portable terminal.

16. The locking method according to claim 13, further comprising emitting light to the locking member so that the driving of the rotary motor is stopped depending on the reflected amount of the emitted light.

17. The locking method according to claim 16, wherein when the predetermined amount of light.

18. The locking method according to claim 16, wherein when it is requested that the locking between the locking member and the locking hole be released, the amount of reflected light from the reflection plate does not exceed exceeds the predetermined amount of light.

19. An apparatus for locking together a portable terminal device and a cradle device, one of which has at least one locking hole, wherein the apparatus comprises:
at least one connection unit to connect the portable terminal to the cradle device; and
a locking unit having at least one locking member to rotate to lock and unlock together the portable terminal device and the cradle device based upon at least locking member rotation information, wherein the locking member is positioned corresponding to the at least one locking hole.

20. The locking apparatus 19, wherein the locking unit further comprises a rotary motor located in the cradle device to control the rotation of the at least one locking member.

21. The locking apparatus of claim 20, wherein the portable terminal device further comprises an input part to allow a user to input a password to release the connection between the locking member and the locking hole, wherein the locking member rotation information is created in response to the inputted password.

22. The locking apparatus of claim 19, further comprising a light transmission/reception device to emit a light to the locking member and to transmit a signal to control the rotation of the at least one locking member.

23. The locking apparatus of claim 22, wherein the light transmission/reception device is located in a position corresponding to a reflection plate located on the at least one locking member.

24. The locking apparatus of claim 23, wherein the light transmission/reception device comprises:

a port located on the cradle device to emit light; and
a hole located on the portable terminal device to receive light from the port and to transmit the light into the interior of the portable terminal;
wherein the hole is positioned to correspond to the port.

25. The locking apparatus of claim 24, wherein the light is an infrared ray.

26. The locking apparatus of claim 24, wherein the reflection plate is positioned to reflect the emitted light from the at least one locking member through the hole and into the port in order to control the rotation of the rotary motor based on the amount of reflected light.

27. The locking apparatus of claim 26, wherein if the light emitted from the at least one locking member to the light transmission/reception port is more than a predetermined amount of reflected light, the rotary motor is continuously driven.

28. The locking apparatus of claim 26, wherein if the light emitted from the at least one locking member to the light transmission/reception port is not more than a predetermined amount of reflected light, the light transmission/reception port operates to transmit a signal to the cradle control section to stop the driving of the rotary motor.

29. The locking apparatus of claim 19, wherein the at least one connection unit comprises a plurality of connection terminals, including:

first and second connection terminals located respectively on the terminal device and the cradle device, wherein the first and the second connection terminals are connectable to each other and respectively transmit data information and signals between the terminal device and the cradle device.

30. The locking apparatus of claim 29, wherein one of the plurality of connection terminals transmits and receives data information and a signal to an exterior device.

31. The locking apparatus of claim 30, wherein the exterior device is a computer.

32. The locking unit of claim 30, wherein the exterior device is a power source.

33. The locking apparatus of claim 29, wherein a signal is transmitted from the terminal control section to the cradle control section in response to the connection of the first and second control section connection terminals.

34. The locking apparatus of claim 29, wherein a signal is transmitted from the terminal control section to the cradle control section in response to a password inputted into an input part.

35. The locking apparatus of claim 20, wherein the cradle device further comprises a polarity switching unit to switch a polarity of electric power applied to the rotary motor.

36. The locking apparatus of claim 35, wherein when a first control signal is inputted into the polarity switching unit, the polarity switching unit switches the polarity of the electric power to rotate the rotary motor in a first direction in order to connect together the portable terminal device and the cradle device.

37. The locking apparatus of claim 36, wherein when a second control signal is inputted into the polarity switching unit, the polarity switching unit switches the polarity of the electric power to rotate the rotary motor in a second direction that is opposite of the first direction in order to release the connection between the portable terminal device and the cradle device.

38. The locking apparatus of claim 19, wherein the at least one locking member is a "1" shape and the locking hole is a bore shape.

39. The locking apparatus of claim 19, wherein the at least one blocking member is formed of a plurality of shapes and sizes and the locking hole is formed of a plurality of shapes and sizes.